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CHOLESTERYL ESTER TRANSFER PROTEIN LEVELS AND CALCIUM SCORE AS RISK PREDICTORS OF CARDIOVASCULAR OUTCOMES

Poster Contributions

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Background: Cholesteryl Ester Transfer Protein (CETP) assists in the transfer of cholesteryl esters from HDL to LDL and VLDL cholesterol. Studies suggest that patients with low CETP levels had lower risk of cardiovascular events. We evaluate whether CETP levels alone or in combination with known cardiac risk factors including calcium score were associated with increased risk of major adverse cardiovascular events (MACE).

Methods: Our cohort included 999 adults, 45-84 years old without known CAD or equivalent, enrolled in the Multi-Ethnic Study of Atherosclerosis with ECG data, coronary calcium scores (CAC), and CETP levels available. MACE was defined as cardiovascular death, MI, revascularization, or stroke. Mean follow-up was 6 years. Multinomial logistic regression analysis was used to assess the independent effects of cardiovascular risk factors by quartiles of CETP on MACE. Cox proportional hazard regression analysis was used to construct Kaplan-Meier curves by median levels of CETP. We compared 2 models: Framingham Risk Score (FRS), major and minor EKG changes, and CAC covariates (Model A) and the addition of CEPT Mass to Model A (Model B); the net reclassification improvement index (NRI) was calculated.

Results: The median CETP mass level was 1.69 mg/dl. Subjects in the highest quartile of CETP mass were more likely to be male, white, with higher total cholesterol and LDL levels, and not on a lipid lowering drug. CAC showed an increased risk of MACE in the second, third, and fourth quartiles of CETP mass. When adjusting for Framingham risk score and ECG abnormalities, CAC was associated with increased risk of MACE in the third (OR 1.47, p-value=0.035) and fourth (OR 1.53, P-value=0.048) quartiles of CETP mass. Addition of CETP mass to Framingham risk score, ECKG abnormalities, and CAC led to an overall NRI of 19.6 % of all subjects (P = 0.036) and 66% in the intermediate risk categories. The absolute integrated discrimination index was 0.0315 (P = 0.004).

Conclusions: An elevated Calcium Score among patients with elevated CETP mass added incremental predictive value for MACE after adjusting for Framingham risk and major or minor ECG abnormalities.